SEQUENCE LISTING

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<120> METHOD FOR OVERPRODUCING A SPECIFIC RECOMBINANT PROTEIN
      WITH P. CINNABARINUS MONOKARYOTIC STRAINS

<130> 0508-1167

<140> 10/586,348
<141> 2006-07-14

<150> PCT/FR05/000093
<151> 2005-01-14

<150> FR 04/00366
<151> 2004-01-15

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<170> PatentIn Ver. 3.3

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Leu Thr Ala Val Ala Asn Ala Ala Ile Gly Pro Val Ala Asp Leu Thr
15                  20                  25                  30

ctt acc aat gcc cag gtc agc ccc gat ggc ttc gct cgc gag gcc gtc      265
Leu Thr Asn Ala Gln Val Ser Pro Asp Gly Phe Ala Arg Glu Ala Val
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gtg gtg aac ggt atc acc cct gcc cct ctc atc aca ggc aat aag          310
Val Val Asn Gly Ile Thr Pro Ala Pro Leu Ile Thr Gly Asn Lys
            50                  55                  60

gtatgtatat gctgctcgtc cctcagagct acatacatct gatccacaat cgtttag       367

ggc gat cga ttc cag ctc aat gtc atc gac cag ttg aca aat cat acc      415
Gly Asp Arg Phe Gln Leu Asn Val Ile Asp Gln Leu Thr Asn His Thr
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atg ttg aaa aca tct agt att gtaagggttc agtttttccc gactaccatg         466
Met Leu Lys Thr Ser Ser Ile
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                        His Trp His Gly Phe Phe Gln Gln Gly Thr
                        85                  90

aac tgg gcc gat ggt ccc gcg ttc gtg aac cag tgt ccc atc gct tcg      567
Asn Trp Ala Asp Gly Pro Ala Phe Val Asn Gln Cys Pro Ile Ala Ser
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                                                            Gly
                                                            125


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Thr Phe Trp Tyr His Ser His Leu Ser Thr Gln Tyr Cys Asp Gly Leu
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agg ggg cct ttc gtc gtc tac gac ccc aac gat cct cac gct agc ctg   761
Arg Gly Pro Phe Val Val Tyr Asp Pro Asn Asp Pro His Ala Ser Leu
            145                 150                 155


tat gac att gat aac g gtgagcagat catggtatcg caatattgcg tccacttatg  817
Tyr Asp Ile Asp Asn
            160


cttcctggca tccag ac  gac act gtc att acg ctg gct gat tgg tat cac   867
                     Asp Asp Thr Val Ile Thr Leu Ala Asp Trp Tyr His
                                 165                 170


gtt gct gcc aag ctc gga cct cgc ttc cc  gtacgtgtca aatgtctacg     916
Val Ala Ala Lys Leu Gly Pro Arg Phe Pro
175                 180


agagatctca catatacgac tagactcact tcgctgatta cag a ttt ggc tcc gat  972
                                                 Phe Gly Ser Asp
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tca acc ctt atc aat gga ctt ggt cga acc act ggc ata gca ccg tcc   1020
Ser Thr Leu Ile Asn Gly Leu Gly Arg Thr Thr Gly Ile Ala Pro Ser
        190                 195                 200


gac ttg gca gtt atc aag gtc acg cag ggc aag cg  gtaagtatgg        1065
Asp Leu Ala Val Ile Lys Val Thr Gln Gly Lys Arg
205                 210                 215


atggtcatca ctgcacattg gctctgatac atggccttgt ttccacag c tac cgc    1120
                                                         Tyr Arg


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Phe Arg Leu Val Ser Leu Ser Cys Asp Pro Asn His Thr Phe Ser Ile
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gat aat cac aca atg act ata att gag gcg gac tcg atc aac act caa   1216
Asp Asn His Thr Met Thr Ile Ile Glu Ala Asp Ser Ile Asn Thr Gln
235                 240                 245                 250


ccc cta gag gtt gat tca atc cag att ttt gcc gcg cag cgc tac tcc   1264
Pro Leu Glu Val Asp Ser Ile Gln Ile Phe Ala Ala Gln Arg Tyr Ser
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Phe Val
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          Leu Asp Ala Ser Gln Pro Val Asp Asn Tyr Trp Ile
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cgc gca aac cct gcc ttc gga aac aca ggt ttt gct ggt gga atc aat        1417
Arg Ala Asn Pro Ala Phe Gly Asn Thr Gly Phe Ala Gly Gly Ile Asn
            285                 290                 295

tct gcc atc ctg cgt tat gat ggc gca ccc gag atc gag cct acg tct        1465
Ser Ala Ile Leu Arg Tyr Asp Gly Ala Pro Glu Ile Glu Pro Thr Ser
            300                 305                 310

gtc cag act act cct acg aag cct ctg aac gag gtc gac ttg cat cct        1513
Val Gln Thr Thr Pro Thr Lys Pro Leu Asn Glu Val Asp Leu His Pro
        315                 320                 325

ctc tcg cct atg cct gtg gtacgtgtct caaagaacct cgatcactaa             1561
Leu Ser Pro Met Pro Val
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gtgcatgtca actcatatgg tgcatgacag cct ggc agc ccc gag ccc gga ggt      1615
                                   Pro Gly Ser Pro Glu Pro Gly Gly
                                       335                 340

gtc gac aag cct ctg aac ttg gtc ttc aac ttc gtgagtactg gcgcgcttcc     1668
Val Asp Lys Pro Leu Asn Leu Val Phe Asn Phe
    345                 350

gtagcacacg ttcgaacaaa gcctgatacc atgcag aac ggc acc aac ttc ttc       1722
                                         Asn Gly Thr Asn Phe Phe
                                             355

atc aac gac cac acc ttt gtc ccg ccg tct gtc cca gtc ttg cta caa       1770
Ile Asn Asp His Thr Phe Val Pro Pro Ser Val Pro Val Leu Leu Gln
360                 365                 370                 375

atc ctc agt ggg gcg cag gcg gct cag gac ctg gtc ccg gag ggc agc       1818
Ile Leu Ser Gly Ala Gln Ala Ala Gln Asp Leu Val Pro Glu Gly Ser
                380                 385                 390

gtg ttc gtt ctt ccc agc aac tcg tcc att gag ata tcc ttc cct gcc       1866
Val Phe Val Leu Pro Ser Asn Ser Ser Ile Glu Ile Ser Phe Pro Ala
            395                 400                 405

act gcc aat gcc cct gga ttc ccc cat ccg ttc cac ttg cac ggt           1911
Thr Ala Asn Ala Pro Gly Phe Pro His Pro Phe His Leu His Gly
            410                 415                 420

gtacgtctgc cttcccctcg tctaaaggcg gagtcgatat ctgactccca tcacag cac     1970
                                                               His

gcc ttc gct gtc gtc cgg agc gcc ggg agc agc gtc tac aac tac gac       2018
Ala Phe Ala Val Val Arg Ser Ala Gly Ser Ser Val Tyr Asn Tyr Asp
    425                 430                 435
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Asn Pro Ile Phe Arg Asp Val Val Ser Thr Gly Gln Pro Gly Asp Asn
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gtc acg att cgc ttc gag acc aat aac cca ggc ccg tgg ttc ctc cac        2114
Val Thr Ile Arg Phe Glu Thr Asn Asn Pro Gly Pro Trp Phe Leu His
                460             465             470

tgc cac att gac ttc cac ctc gac gca ggc ttt gct gta gtc atg gcc        2162
Cys His Ile Asp Phe His Leu Asp Ala Gly Phe Ala Val Val Met Ala
            475             480             485

gag gac act ccg gac acc aag gcc gcg aac cct gtt cct cag gcg tgg        2210
Glu Asp Thr Pro Asp Thr Lys Ala Ala Asn Pro Val Pro Gln Ala Trp
            490             495             500

tcg gac ttg tgc ccc atc tat gat gca ctt gac ccc agc gac ctc            2255
Ser Asp Leu Cys Pro Ile Tyr Asp Ala Leu Asp Pro Ser Asp Leu
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<213> Pycnoporus cinnabarinus

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Asn Ala Gln Val Ser Pro Asp Gly Phe Ala Arg Glu Ala Val Val Val
        35              40              45

Asn Gly Ile Thr Pro Ala Pro Leu Ile Thr Gly Asn Lys Gly Asp Arg
    50              55              60
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Phe Gln Leu Asn Val Ile Asp Gln Leu Thr Asn His Thr Met Leu Lys
65   70   75   80

Thr Ser Ser Ile His Trp His Gly Phe Phe Gln Gln Gly Thr Asn Trp
            85   90   95

Ala Asp Gly Pro Ala Phe Val Asn Gln Cys Pro Ile Ala Ser Gly His
            100   105   110

Ser Phe Leu Tyr Asp Phe Gln Val Pro Asp Gln Ala Gly Thr Phe Trp
        115   120   125

Tyr His Ser His Leu Ser Thr Gln Tyr Cys Asp Gly Leu Arg Gly Pro
    130   135   140

Phe Val Val Tyr Asp Pro Asn Asp Pro His Ala Ser Leu Tyr Asp Ile
145   150   155   160

Asp Asn Asp Asp Thr Val Ile Thr Leu Ala Asp Trp Tyr His Val Ala
            165   170   175

Ala Lys Leu Gly Pro Arg Phe Pro Phe Gly Ser Asp Ser Thr Leu Ile
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Asn Gly Leu Gly Arg Thr Thr Gly Ile Ala Pro Ser Asp Leu Ala Val
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Ile Lys Val Thr Gln Gly Lys Arg Tyr Arg Phe Arg Leu Val Ser Leu
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Ser Cys Asp Pro Asn His Thr Phe Ser Ile Asp Asn His Thr Met Thr
225   230   235   240

Ile Ile Glu Ala Asp Ser Ile Asn Thr Gln Pro Leu Glu Val Asp Ser
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Ile Gln Ile Phe Ala Ala Gln Arg Tyr Ser Phe Val Leu Asp Ala Ser
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Gln Pro Val Asp Asn Tyr Trp Ile Arg Ala Asn Pro Ala Phe Gly Asn
        275   280   285

Thr Gly Phe Ala Gly Gly Ile Asn Ser Ala Ile Leu Arg Tyr Asp Gly
    290   295   300

Ala Pro Glu Ile Glu Pro Thr Ser Val Gln Thr Thr Pro Thr Lys Pro
305   310   315   320

Leu Asn Glu Val Asp Leu His Pro Leu Ser Pro Met Pro Val Pro Gly
            325   330   335

Ser Pro Glu Pro Gly Gly Val Asp Lys Pro Leu Asn Leu Val Phe Asn
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Phe Asn Gly Thr Asn Phe Phe Ile Asn Asp His Thr Phe Val Pro Pro
        355   360   365

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Asp Leu Val Pro Glu Gly Ser Val Phe Val Leu Pro Ser Asn Ser Ser
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Ile Glu Ile Ser Phe Pro Ala Thr Ala Asn Ala Pro Gly Phe Pro His
            405             410             415

Pro Phe His Leu His Gly His Ala Phe Ala Val Val Arg Ser Ala Gly
        420             425             430

Ser Ser Val Tyr Asn Tyr Asp Asn Pro Ile Phe Arg Asp Val Val Ser
        435             440             445

Thr Gly Gln Pro Gly Asp Asn Val Thr Ile Arg Phe Glu Thr Asn Asn
    450             455             460

Pro Gly Pro Trp Phe Leu His Cys His Ile Asp Phe His Leu Asp Ala
465             470             475             480

Gly Phe Ala Val Val Met Ala Glu Asp Thr Pro Asp Thr Lys Ala Ala
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<212> DNA
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
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Glu Phe Phe Ser Leu Tyr Val Gln Ala Leu Asp Ile Met Tyr Gly Leu
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Lys Gln Glu Glu Leu Ile Ser Phe Phe Gln Ile Gly Gly Ile His Gly
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Leu Pro Tyr Val Ala Trp Ser Asp Ala Gly Ala Asp Asp Pro Ala Glu
65   70   75   80

Pro Ser Gly Tyr Cys Thr His Gly Ser Val Leu Phe Pro Thr Trp His
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Arg Pro Tyr Val Ala Leu Tyr Glu Gln Ile Leu His Lys Tyr Ala Gly
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Glu Ile Ala Asp Lys Tyr Thr Val Asp Lys Pro Arg Trp Gln Lys Ala
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Ala Ala Asp Leu Arg Gln Pro Phe Trp Asp Trp Ala Lys Asn Thr Leu
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Pro Pro Pro Glu Val Ile Ser Leu Asp Lys Val Thr Ile Thr Thr Pro
145   150   155   160

Asp Gly Gln Arg Thr Gln Val Asp Asn Pro Leu Arg Arg Tyr Arg Phe
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His Pro Ile Asp Pro Ser Phe Pro Glu Pro Tyr Ser Asn Trp Pro Ala
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Thr Leu Arg His Pro Thr Ser Asp Gly Ser Asp Ala Lys Asp Asn Val
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Lys Asp Leu Thr Thr Thr Leu Lys Ala Asp Gln Pro Asp Ile Thr Thr
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Lys Thr Tyr Asn Leu Leu Thr Arg Val His Thr Trp Pro Ala Phe Ser
225   230   235   240

Asn His Thr Pro Gly Asp Gly Gly Ser Ser Ser Asn Ser Leu Glu Ala
         245   250   255

Ile His Asp His Ile His Asp Ser Val Gly Gly Gly Gly Gln Met Gly
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Asp Pro Ser Val Ala Gly Phe Asp Pro Ile Phe Phe Leu His His Cys
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Gln Val Asp Arg Leu Leu Ala Leu Trp Ser Ala Leu Asn Pro Gly Val
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Trp Val Asn Ser Ser Ser Ser Glu Asp Gly Thr Tyr Thr Ile Pro Pro
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Gln Ser Thr Phe Trp Thr Ser Phe Gln Ser Ala Gly Val Ser Pro Ser
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Gln Lys Ala Val Lys Asp His Ile Ala Glu Val Val Asn Glu Leu Tyr
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Gly His Arg Met Arg Lys Thr Phe Pro Phe Pro Gln Leu Gln Ala Val
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Ser Val Ala Lys Gln Gly Asp Ala Val Thr Pro Ser Val Ala Thr Asp
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Ser Val Ser Ser Ser Thr Thr Pro Ala Glu Asn Pro Ala Ser Arg Glu
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Asp Ala Ser Asp Lys Asp Thr Glu Pro Thr Leu Asn Val Glu Val Ala
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Ala Pro Gly Ala His Leu Thr Ser Thr Lys Tyr Trp Asp Trp Thr Ala
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Arg Ile His Val Lys Lys Tyr Glu Val Gly Gly Ser Phe Ser Val Leu
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Leu Phe Leu Gly Ala Ile Pro Glu Asn Pro Ala Asp Trp Arg Thr Ser
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Pro Asn Tyr Val Gly Gly His His Ala Phe Val Asn Ser Ser Pro Gln
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Arg Cys Ala Asn Cys Arg Gly Gln Gly Asp Leu Val Ile Glu Gly Phe
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Val His Leu Asn Glu Ala Ile Ala Arg His Ala His Leu Asp Ser Phe
            530             535             540

Asp Pro Thr Val Val Arg Pro Tyr Leu Thr Arg Glu Leu His Trp Gly
545             550             555             560

Val Met Lys Val Asn Gly Thr Val Val Pro Leu Gln Asp Val Pro Ser
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Leu Glu Val Val Val Leu Ser Thr Pro Leu Thr Leu Pro Pro Gly Glu
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Pro Phe Pro Val Pro Gly Thr Pro Val Asn His His Asp Ile Thr His
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gacttatttt cgcacttctc tcagaatata aaggcctatt gtgatacggt tcatctaacc     240

ccagcgtccc ctccgaaag atg ggc tgc ctc tca ctc ttc gca ttc ctt act     292
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gct tta aac tca gtt cat gcc gct gtg ggt ccc gtt acg gac tta aca     340
Ala Leu Asn Ser Val His Ala Ala Val Gly Pro Val Thr Asp Leu Thr
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ctg atc gta gat act gtc gcc ccc gac ggt gct gct ttc gcg cgg gaa     388
Leu Ile Val Asp Thr Val Ala Pro Asp Gly Ala Ala Phe Ala Arg Glu
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ggtgagactt tgcgactgta aatgccggat ttgagtttct aattataatc ttcca gcc     446
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att gtc gtc caa gag gaa cca aac tcc gtc att ggt ccg gtc atc gta     494
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45                  50                  55                  60

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     Gly Gln Lys Gly Asp Asn Phe Arg Leu Asn Val Ile Asn Asn Leu
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gat tct ccg aac atg cgc caa tct act tcc att cat tgg cat ggc atc     651
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Ala Pro Gly Gly Asp Ser Phe Leu Tyr Asp Phe Thr Glu Pro Phe Gln
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Thr Gly Thr Phe Trp Tyr His Ser His Leu Ser Thr Gln Tyr Cys Asp
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tac gat gtc gac gac gag tcg act gtg att act ctg gcg gac tgg tac    1104
Tyr Asp Val Asp Asp Glu Ser Thr Val Ile Thr Leu Ala Asp Trp Tyr
            165                 170                 175

cac agc tat gcg gag gac att cta atc gcg taggagattt tcccaagatg      1154
His Ser Tyr Ala Glu Asp Ile Leu Ile Ala
            180                 185

tctcctctgc ctctctgaaa tccatgaact agt gca ggc gac act atc ctc atc   1208
                                    Ala Gly Asp Thr Ile Leu Ile
                                                        190

aat ggt cac gga aga ttc gcc gga gcc ggc gga acg gca aca gaa cta    1256
Asn Gly His Gly Arg Phe Ala Gly Ala Gly Gly Thr Ala Thr Glu Leu
195                 200                 205                 210

tct gtc att act gtt gag cat gga aag cgg taggcattct ccctcggctt      1306
Ser Val Ile Thr Val Glu His Gly Lys Arg
                215                 220

tgtagatgtg tctaatttgt gatagc tac cga ttg cga ttt gcc aat atc gct   1359
                       Tyr Arg Leu Arg Phe Ala Asn Ile Ala
                                            225
```

```
tgt gac cct tgg ttt gcc gtg aaa atc gat agc cat acg aac ctt cgc      1407
Cys Asp Pro Trp Phe Ala Val Lys Ile Asp Ser His Thr Asn Leu Arg
230             235             240                 245

gtt atc gaa gct gac ggt att act act gtgcctgtca cggtggactc           1454
Val Ile Glu Ala Asp Gly Ile Thr Thr
                250

cttcaatgta ggcttaccct tagcactttc ccactctgga tcctcttatg acttcccaag   1514

atc ttt gtg ggc caa cga tat agt gtc atc ctc cat gcc aac cag cct      1562
Ile Phe Val Gly Gln Arg Tyr Ser Val Ile Leu His Ala Asn Gln Pro
255             260             265                 270

gtt gga aac tac t gtaagctgcc taaatgttgc atgactgtcc atgattctaa        1615
Val Gly Asn Tyr


ccccgccag gg  att cgg gcc gct ccg aac ggc gtg agc aat ttc gcg ggt   1665
             Trp Ile Arg Ala Ala Pro Asn Gly Val Ser Asn Phe Ala Gly
             275             280                 285

ggg atc gac tcg gct att ctc cgt tat gtt ggc gcc cca gaa gaa gag      1713
Gly Ile Asp Ser Ala Ile Leu Arg Tyr Val Gly Ala Pro Glu Glu Glu
    290             295             300

ccc aac act agt gag gat act cca tcc gac aca ctt caa gag cag gat      1761
Pro Asn Thr Ser Glu Asp Thr Pro Ser Asp Thr Leu Gln Glu Gln Asp
305             310             315                 320

ctt cac ccg ctg atc cta ccc ggc gcg cca ggc atc cac tcc cgt ggg      1809
Leu His Pro Leu Ile Leu Pro Gly Ala Pro Gly Ile His Ser Arg Gly
                325             330                 335

gcc gcc gac gtt gtc cac acc gta tca atg gag ttt gtgagtgtgg          1855
Ala Ala Asp Val Val His Thr Val Ser Met Glu Phe
            340             345

cgacttttct ggcccccttt attaatataa tctggttagg atggcgcaaa cttccaattc   1915

ctcctggatg gcgtggcctt ccagccgtgc gtcatctctt tcaaagaatt tatctag      1972

ctg acg att ttg aaa tgt agc ccg acc atg ccc gtc ctt ctg caa ata      2020
Leu Thr Ile Leu Lys Cys Ser Pro Thr Met Pro Val Leu Leu Gln Ile
    350             355             360

tta tcg gga gcg cag act gct aat acc ctt ctc ccg gcg gga tcc ttt      2068
Leu Ser Gly Ala Gln Thr Ala Asn Thr Leu Leu Pro Ala Gly Ser Phe
365             370             375                 380

atc caa gcg tcg cac aat gac atc gtg gag ctc aat ttc cca gct gtc      2116
Ile Gln Ala Ser His Asn Asp Ile Val Glu Leu Asn Phe Pro Ala Val
            385             390                 395

aac gta gcc gct gtc ggt gga ccg tgcgtcccat ctttccttgc cagcttgaaa    2170
Asn Val Ala Ala Val Gly Gly Pro
            400
```

```
tttacgctct tttaga cat cca atc cat ctg tgagcgcagc gggacctttg          2221
              His Pro Ile His Leu
              405
```

```
gcttatggca tatgacttat tattagc cat ggc cat gca ttc gac gtt ata cgc    2275
                       His Gly His Ala Phe Asp Val Ile Arg
                       410                 415
```

```
tct gct gga acg aac tcc gat aac tgg ttc aat ccg gtattttcat           2321
Ser Ala Gly Thr Asn Ser Asp Asn Trp Phe Asn Pro
    420             425             430
```

```
tcgacttcca taagatgacg atggctcact atggttttta cccag cct cgc aga gat    2378
                                       Pro Arg Arg Asp
```

```
gtc gta tcc acc ggt acc gat cct aat gac aat gtg tacgtgtttc           2424
Val Val Ser Thr Gly Thr Asp Pro Asn Asp Asn Val
435             440             445
```

```
gctattgatt gtccgttttg atttgactgt tggacagc acc att cgc ttc cgg gcc    2480
                                         Thr Ile Arg Phe Arg Ala
                                                         450
```

```
gac aac ccg tacgtaaact gctgaatctc tcgttgtctt tggttctcat              2529
Asp Asn Pro
        455
```

```
aatctcatca ga ggt cca tgg ttc ctt cac tgc cac att gac tgg cac ctt    2580
              Gly Pro Trp Phe Leu His Cys His Ile Asp Trp His Leu
                       460                 465
```

```
gaa ctc ggc ttt gct ttg gtg att gca gaa gcg cct agc gaa tgg gac      2628
Glu Leu Gly Phe Ala Leu Val Ile Ala Glu Ala Pro Ser Glu Trp Asp
    470             475             480
```

```
agc gac att aac cct cct ggtgcgctgc ctgtgaacct tttctcccta             2676
Ser Asp Ile Asn Pro Pro
485             490
```

```
cacttgctaa gatcgctcta gct gcg tgg gat gac cta tgc cct acg ttc gct    2729
                       Ala Ala Trp Asp Asp Leu Cys Pro Thr Phe Ala
                                       495                 500
```

```
tgg ctt ctc ttt tac tat ttc aag ttt cct cac att ctc aac ttc aca      2777
Trp Leu Leu Phe Tyr Tyr Phe Lys Phe Pro His Ile Leu Asn Phe Thr
        505             510             515
```

```
gat atg atg ccc tgc cgc ctg agc agc agt aat cga gtt aag aac ctc      2825
Asp Met Met Pro Cys Arg Leu Ser Ser Ser Asn Arg Val Lys Asn Leu
        520             525             530
```

```
aac gtt gac taaggaaaaa gcaaagcaga atatgaaact ctcatttatc              2874
Asn Val Asp
        535
```

```
tttatatcga cacattcact attcaaccta cggattttcc ctcgcacctg aatttcggtg    2934
```

ctagatcccc atccttggtg gagtaggaaa gaaatttctt gtataaaacc catgggttct   2994

tctaccaata tatacataac gtccgtgggg ttagttaatt cgt   3037

<210> 18
<211> 536
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<213> Halocyphina villosa

<400> 18

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Met Gly Cys Leu Ser Leu Phe Ala Phe Leu Thr Ala Leu Asn Ser Val
1               5                   10                  15

His Ala Ala Val Gly Pro Val Thr Asp Leu Thr Leu Ile Val Asp Thr
            20                  25                  30

Val Ala Pro Asp Gly Ala Ala Phe Ala Arg Glu Ala Ile Val Val Gln
        35                  40                  45

Glu Glu Pro Asn Ser Val Ile Gly Pro Val Ile Val Gly Gln Lys Gly
    50                  55                  60

Asp Asn Phe Arg Leu Asn Val Ile Asn Asn Leu Asp Ser Pro Asn Met
65                  70                  75                  80

Arg Gln Ser Thr Ser Ile His Trp His Gly Ile Phe Gln Gly Asn Gly
                85                  90                  95

Gln Asn Trp Ala Asp Gly Ala Ala Phe Val Asn Gln Cys Pro Ile Ala
            100                 105                 110

Pro Gly Gly Asp Ser Phe Leu Tyr Asp Phe Thr Glu Pro Phe Gln Thr
            115                 120                 125

Gly Thr Phe Trp Tyr His Ser His Leu Ser Thr Gln Tyr Cys Asp Gly
    130                 135                 140

Leu Arg Gly Ala Phe Val Ile Tyr Asp Pro Leu Asp Pro Tyr Arg Leu
145                 150                 155                 160

Leu Tyr Asp Val Asp Asp Glu Ser Thr Val Ile Thr Leu Ala Asp Trp
            165                 170                 175

Tyr His Ser Tyr Ala Glu Asp Ile Leu Ile Ala Ala Gly Asp Thr Ile
            180                 185                 190

Leu Ile Asn Gly His Gly Arg Phe Ala Gly Ala Gly Gly Thr Ala Thr
            195                 200                 205

Glu Leu Ser Val Ile Thr Val Glu His Gly Lys Arg Tyr Arg Leu Arg
    210                 215                 220

Phe Ala Asn Ile Ala Cys Asp Pro Trp Phe Ala Val Lys Ile Asp Ser
225                 230                 235                 240

His Thr Asn Leu Arg Val Ile Glu Ala Asp Gly Ile Thr Thr Ile Phe
            245                 250                 255
```

```
Val Gly Gln Arg Tyr Ser Val Ile Leu His Ala Asn Gln Pro Val Gly
            260             265             270

Asn Tyr Trp Ile Arg Ala Ala Pro Asn Gly Val Ser Asn Phe Ala Gly
            275             280             285

Gly Ile Asp Ser Ala Ile Leu Arg Tyr Val Gly Ala Pro Glu Glu Glu
        290             295             300

Pro Asn Thr Ser Glu Asp Thr Pro Ser Asp Thr Leu Gln Glu Gln Asp
305             310             315             320

Leu His Pro Leu Ile Leu Pro Gly Ala Pro Gly Ile His Ser Arg Gly
                325             330             335

Ala Ala Asp Val Val His Thr Val Ser Met Glu Phe Leu Thr Ile Leu
            340             345             350

Lys Cys Ser Pro Thr Met Pro Val Leu Leu Gln Ile Leu Ser Gly Ala
        355             360             365

Gln Thr Ala Asn Thr Leu Leu Pro Ala Gly Ser Phe Ile Gln Ala Ser
    370             375             380

His Asn Asp Ile Val Glu Leu Asn Phe Pro Ala Val Asn Val Ala Ala
385             390             395             400

Val Gly Gly Pro His Pro Ile His Leu His Gly His Ala Phe Asp Val
            405             410             415

Ile Arg Ser Ala Gly Thr Asn Ser Asp Asn Trp Phe Asn Pro Pro Arg
            420             425             430

Arg Asp Val Val Ser Thr Gly Thr Asp Pro Asn Asp Asn Val Thr Ile
            435             440             445

Arg Phe Arg Ala Asp Asn Pro Gly Pro Trp Phe Leu His Cys His Ile
    450             455             460

Asp Trp His Leu Glu Leu Gly Phe Ala Leu Val Ile Ala Glu Ala Pro
465             470             475             480

Ser Glu Trp Asp Ser Asp Ile Asn Pro Pro Ala Ala Trp Asp Asp Leu
            485             490             495

Cys Pro Thr Phe Ala Trp Leu Leu Phe Tyr Tyr Phe Lys Phe Pro His
        500             505             510

Ile Leu Asn Phe Thr Asp Met Met Pro Cys Arg Leu Ser Ser Ser Asn
        515             520             525

Arg Val Lys Asn Leu Asn Val Asp
    530             535
```